National Institute of Environmental Health Sciences

The ecology of Anopheles mosquitoes under climate change: Case studies from the effects of deforestation in East African highlands

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Abstract:

Climate change is expected to lead to latitudinal and altitudinal temperature increases. High-elevation regions such as the highlands of Africa and those that have temperate climate are most likely to be affected. The highlands of Africa generally exhibit low ambient temperatures. This restricts the distribution of Anopheles mosquitoes, the vectors of malaria, filariasis, and O'nyong'nyong fever. The development and survival of larval and adult mosquitoes are temperature dependent, as are mosquito biting frequency and pathogen development rate. Given that various Anopheles species are adapted to different climatic conditions, changes in climate could lead to changes in species composition in an area that may change the dynamics of mosquito-borne disease transmission. It is important to consider the effect of climate change on rainfall, which is critical to the formation and persistence of mosquito breeding sites. In addition, environmental changes such as deforestation could increase local temperatures in the highlands; this could enhance the vectorial capacity of the Anopheles. These experimental data will be invaluable in facilitating the understanding of the impact of climate change on Anopheles.

Source: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3767301

Resource Description

Exposure : ☑

weather or climate related pathway by which climate change affects health

Meteorological Factors, Precipitation, Temperature

Temperature: Fluctuations

Geographic Feature: ☑

resource focuses on specific type of geography

Other Geographical Feature

Other Geographical Feature : highlands

Geographic Location: ☑

resource focuses on specific location

Non-United States

Non-United States: Africa

African Region/Country: African Region, African Country

Other African Region: east africa

Other African Country: kenya, uganda

Health Impact:

specification of health effect or disease related to climate change exposure

Infectious Disease

Infectious Disease: Vectorborne Disease

Vectorborne Disease: Mosquito-borne Disease

Mosquito-borne Disease: General Mosquito-borne Disease

Medical Community Engagement:

resource focus on how the medical community discusses or acts to address health impacts of climate change

A focus of content

Resource Type:

format or standard characteristic of resource

Review

Timescale:

time period studied

Time Scale Unspecified